

The Multi-Billion Dollar Vascular
Disease No One Teaches, But Should!!!
Venous Insufficiency

Thomas E. Eidson, DO
Certified Venous Disease Specialist
Board Certified Family Medicine



Disclosure of Conflict of Interest

I do not have relevant financial relationships with
any commercial interests

Bio

- Certified Phlegologist (Vein Disease Specialist)
 - American Board of Venous and Lymphatic Medicine
- Board Certified Family Medicine
- Successfully performed over 6000 vein procedures since 2011
- Published in Vein Therapy News
- Founder of Atlas Vein Care in Arlington, TX

Questions for Thought

1. Which of these vascular diseases is most common in the United States?

- A – Peripheral Arterial Disease (PAD)
- B – Venous Insufficiency/Reflux Disease
- C – Coronary Artery Disease
- D – Stroke

Questions for Thought

2. Which of the following is a correct statement?

- A – Venous disease affects men more than women
- B – Venous disease affects women more than men
- C – Venous disease affects women and men the same
- D – I don't know but I think I am going to find out very soon

Questions for Thought

3. Which of these statements is FALSE?

- A – Venous reflux is a disease of old people
- B – Venous insufficiency is purely cosmetic and not a big deal
- C – Insurance does not cover treatment of venous reflux
- D – Varicose veins should be treated with vein stripping
- E – All of the above

Questions for Thought

4. According to most recent estimates, how many people in the US are afflicted with venous reflux disease?

- A – between 5 and 10 Million people
- B – between 10 and 20 million people
- C – between 40 to 50 million people
- D – 50+ million people
- E – I don't know but I bet it's a lot or you would not be up here talking about it

Questions for Thought

5. Which of these symptoms CANNOT be associated with chronic venous insufficiency?

- A – leg pain, aching, and heaviness
- B – Night cramps and Restless Legs
- C – Lower extremity and ankle edema
- D – Skin darkening and texture changes
- E – All of the above can be caused by venous reflux

Questions for Thought

6. How much money is spent yearly just on treatment of venous ulcers in the United States?

A – \$50 - 100 Million

B – \$100 - 500 Million

C – \$1 - 2 Billion

D – Over \$3 Billion

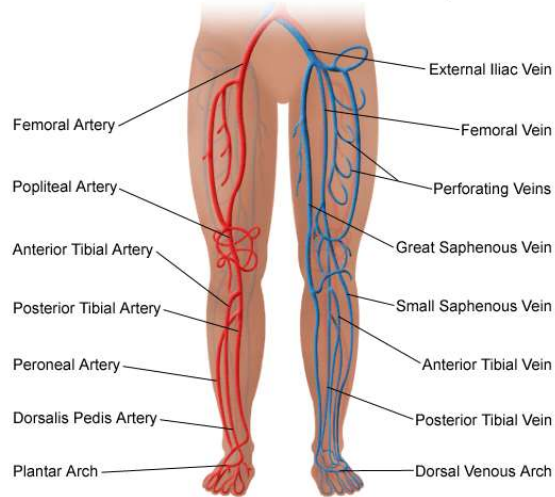
E – I don't know but I bet it's more than I spent to come here and get CME

PHLEBOLOGY

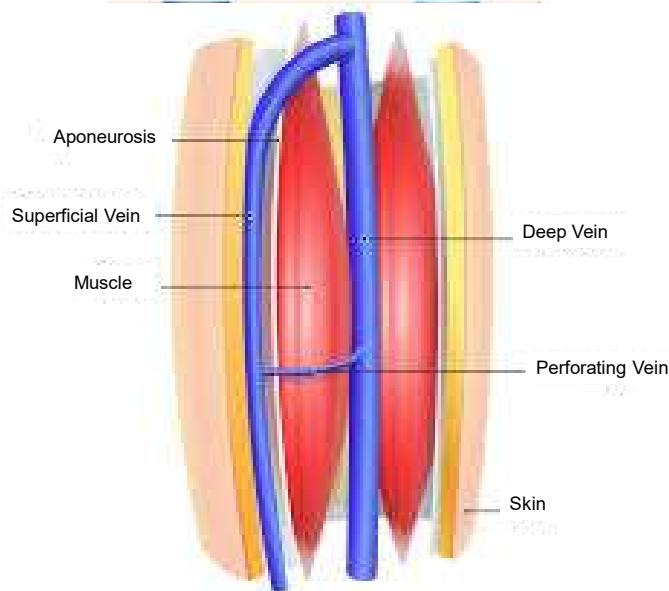
The medical specialty devoted to the diagnosis and treatment of patients with venous disorders

Leg Vascular System

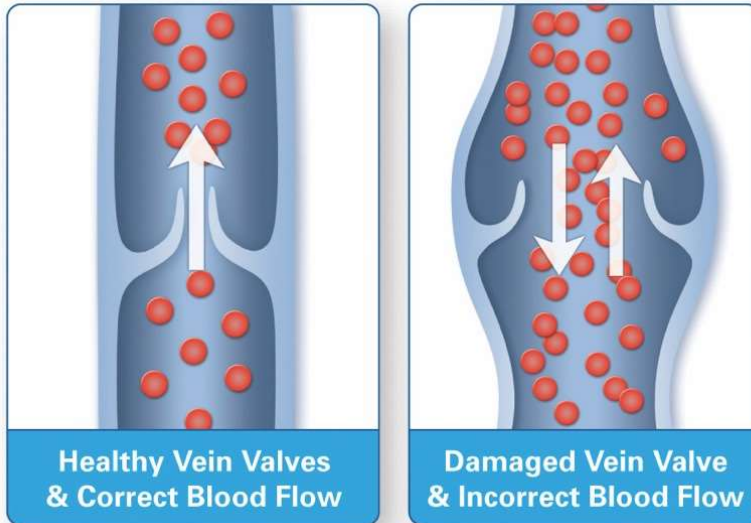
Arterial and Venous Circulation of the Legs



Components of Venous System



Venous Insufficiency (Venous Reflux Disease)

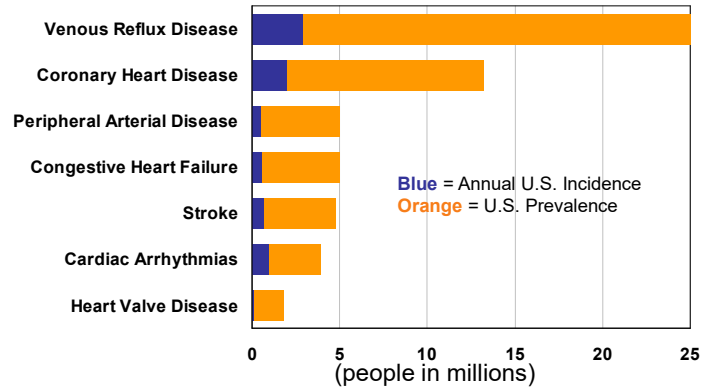


Prevalence of Chronic Venous Disease¹

- **1 in 22** or **4.5%** or **12.2 million** people in the USA are affected by varicose veins alone
- Incidence increases with age and is more common in women with **over 40% of women** in their 50's suffering from some sort of venous disorder
- Across all ages and gender, **~60% of Americans** suffer from venous disease and its complications

Prevalence and Etiology of Venous Insufficiency

Venous reflux disease is 2x more prevalent than coronary heart disease (CHD) and 5x more prevalent than peripheral arterial disease (PAD)²



² Gloviczki, P., MD., Comerota, A., MD., Dalsing, M., MD., Eklof, B., MD., Gillespie, D., MD., Gloviczki, M., MD., Wakefield, T., MD. The care of patients with varicose veins and associated chronic venous diseases: Clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum. J Vasc Surg. 2011 May; 53(5 Suppl): 2S-48S.

Venous Disease in USA

Prevalence ~ 50,000,000+

Seek Evaluation/Treatment ~ 1,900,000 (3.8%)

Treated ~ 492,000 (1%)

Prevalence and Etiology of Venous Insufficiency

Of the estimated 50+ million people with symptomatic superficial venous reflux² :

- Only 1.9 million seek treatment annually²
- Over 48 million do not even get evaluated

Prevalence by Age and Gender³

Age	Female	Male
20 - 29	8%	1%
40 - 49	41%	24%
60 - 69	72%	43%

Economic and Social Impact of Vein Disease

- Venous ulcer treatment alone costs ~\$3 billion per year in the U.S³
- Venous ulcers cause the loss of approximately 2 million working days per year³
- Impairment related to C5 and C6 disease is likened to the impairment related to advanced heart failure⁴

Visible Spectrum of Vein Disease



Superficial Thrombophlebitis



Possible Risk Factors^{5,6,7,8} of Venous Insufficiency

Possible risk factors for venous insufficiency:

- Gender
- Age
- Heredity
- Pregnancy
- Standing occupation
- Obesity
- Prior injury or surgery
- Patient height (limited evidence)

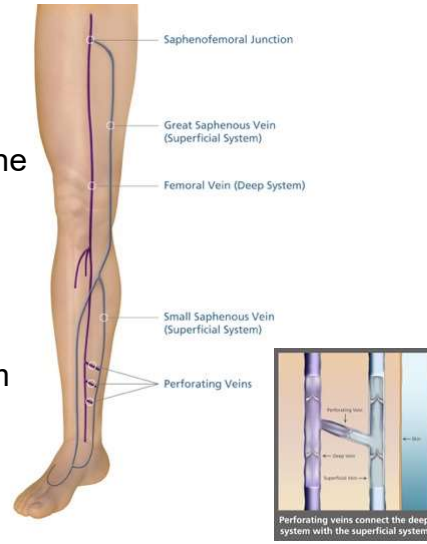
Symptoms of Venous Insufficiency

Symptoms of venous insufficiency:

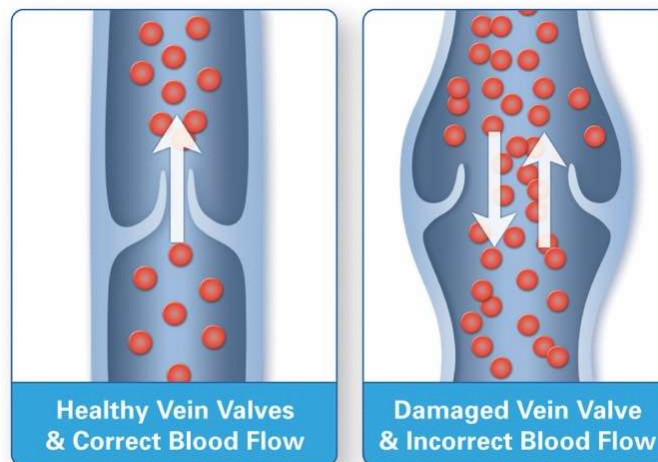
- Leg pain, aching, or cramping
- Burning or itching of the skin
- Leg or ankle swelling
- “Heavy” feeling in legs
- Skin discoloration or texture changes
- Open wounds or sores
- Restless legs
- Varicose Veins

Venous System

- Venous blood flows from the capillaries to the heart
- Flow occurs against gravity
 - Muscular compression of the veins
 - Negative intrathoracic pressure
 - Calf muscle pump
- Low flow, low pressure system

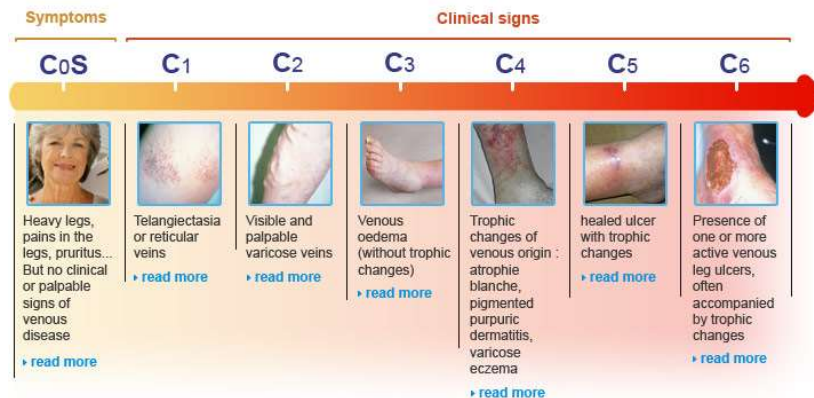


Pathophysiology of Venous Insufficiency



Classification of Venous Disease

International Consensus
CEAP



C0 - C6 : description of the progression of the disease on the basis of the clinical signs present
C : clinical signs E : etiological classification A : anatomical distribution P : pathophysiological dysfunction

Telangiectasias

- Also known as “spider veins” due to their appearance
- Very common, especially in women
- Increase in frequency with age
- 85% of patients are symptomatic*
- May indicate more extensive venous disease



*Weiss RA and Weiss MA. J Dermatol Surg Oncol. 1990 Apr;16(4):333-6.

Lateral Subdermic Plexus

- Very common, especially in women
- Superficial veins with direct perforators to deep system
- Remnant of embryonic deep venous system



Reticular Veins

- Enlarged, greenish-blue appearing veins
- Frequently associated with clusters of telangiectasias
- May be symptomatic, especially in dependent areas of leg



Varicose Veins – Great Saphenous Distribution

- Most common finding in patients with varicose veins
- Varicosities most commonly along the medial thigh and calf but cannot assume location indicates origin
- At least 20% of patients are at risk of ulceration



Great Saphenous Insufficiency

- Skin changes are seen along the medial aspect of the ankle
- The presence of skin changes is a predictor of future ulceration*



*Kirsner R et al. The Clinical Spectrum of Lipodermato-sclerosis, J Am Acad Derm, April 1993;28(4):623-7

Varicose Veins with Pelvic Origins

- Begin during pregnancy
- Increased symptoms during pre-menstrual period and after intercourse
- May be associated with pelvic congestion syndrome, May-Thurner syndrome or Nutcracker syndrome



Skin changes suggestive of chronic venous insufficiency



Corona Phlebectatica (C1)



Atrophie blanche (C4b)



Pigmentation (C4a)



Healed ulcer (C5)

Venous Ulceration



Manifestations of Venous Insufficiency

Superficial venous reflux is progressive and if left untreated, may worsen over time.

Below are manifestations of the disease.⁸



Photos courtesy of Rajabrata Sarkar, MD, PhD.

Evaluation of Vein Disease

- Medical history and physical exam
- Non-invasive imaging
 - Venous reflux scan using Ultrasound



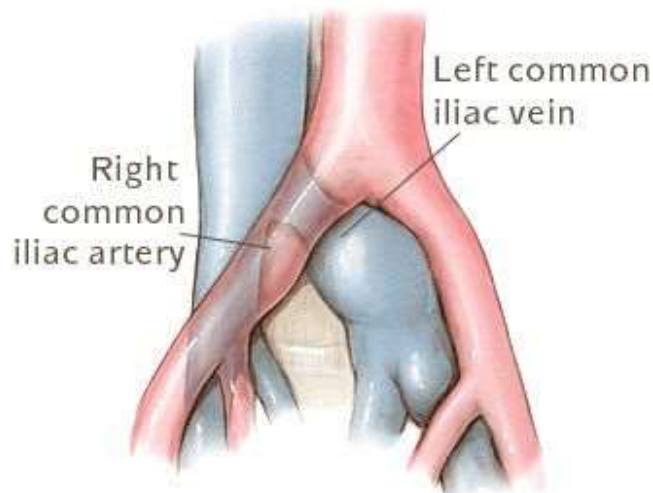
Evaluation of Vein Disease

- If there is an active wound, decreased pulses, or risk factors for arterial disease
 - ABI at minimum
 - Possible Arterial US and Doppler exam
 - Further workup if indicated
 - Arteriogram
 - Venogram
 - IVUS (Intra-vascular Ultrasound)

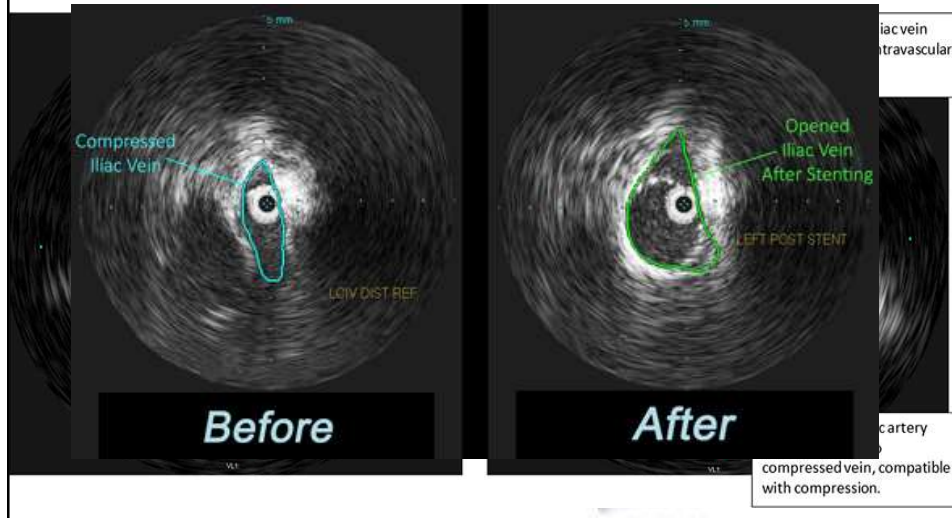
Zebras of Vein Disease May-Thurner Syndrome

- Aka Iliac Vein Compression Syndrome
- Left iliac vein is compressed by the right iliac artery
 - Similar issue can happen in right leg also
- Causes symptoms extremely similar to chronic venous insufficiency
- Greatly increases risk of DVT in iliofemoral vein

Zebras of Vein Disease May-Thurner Syndrome



Zebras of Vein Disease May-Thurner Syndrome



Treatment Options for Venous Reflux Disease

Conservative Therapies:

- Exercise
- Leg elevation
- Compression Stockings (Gold Standard)
 - 15-20mmHg pressure
 - 20-30mmHg is ideal for edema and venous reflux
 - 30-40mmHg recommended for venous wounds
 - Compression contraindicated in arterial disease wounds
- Unna Boot
- Intermittent Pneumatic Compression
- Weight loss

These therapies treat the symptoms, not the underlying cause...

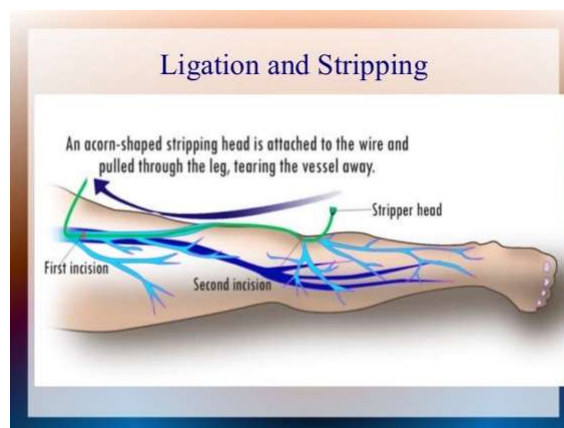
Compression Socks



Treatment Options (cont'd)

Surgical Treatment options:

- **Vein Stripping**
- **Vein Ligations**

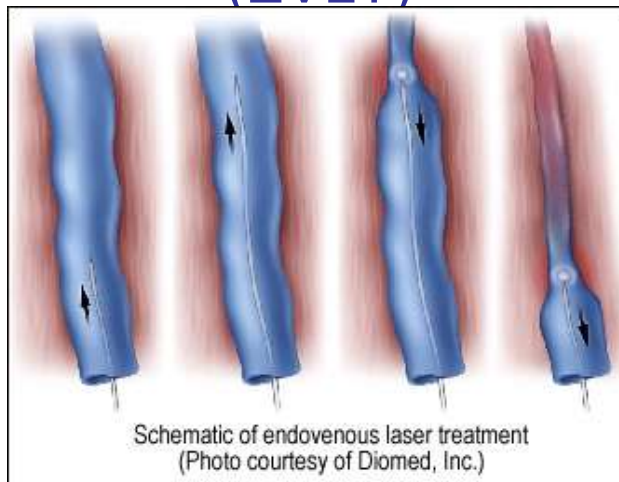


Treatment Options (cont'd)

Minimally Invasive Options:

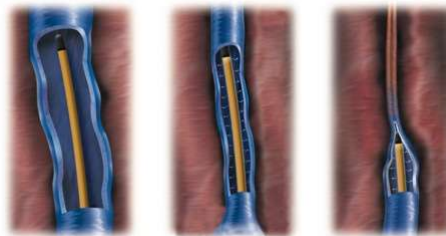
- Endovenous Thermal Ablation
 - Laser ablation
 - Radiofrequency Ablation
- Non-Thermal Ablation
 - Venaseal
 - Clarivein
 - Varithena
 - Microphlebectomy
 - Sclerotherapy

Endovenous Laser Ablation (EVLT)



Radiofrequency Ablation The VNUS Closure™ Procedure

- The VNUS Closure procedure is a minimally invasive treatment alternative for patients with symptomatic superficial venous reflux and varicose veins
- Using a catheter-based approach, the VNUS RFG Plus™ generator delivers radiofrequency (RF) energy to the ClosureFAST™ catheter
- The catheter heats the vein wall and contracts the vein wall collagen, thereby occluding the vein



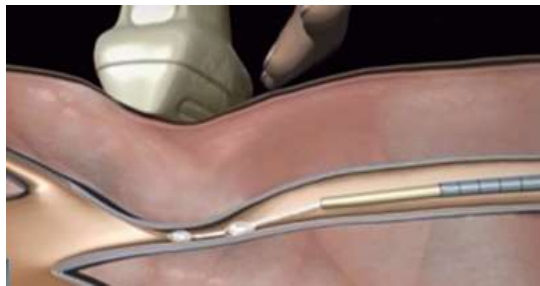
Disposable catheter inserted into vein

Vein heats and collapses

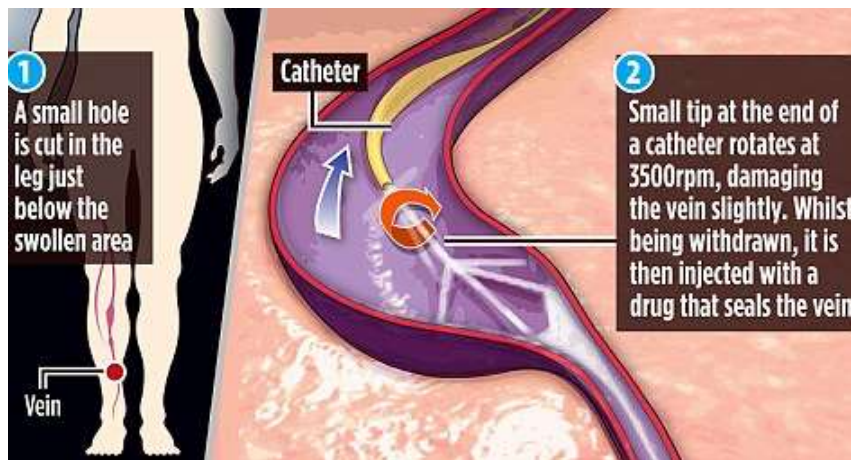
Catheter withdrawn, closing vein

venaseal.
Closure System

VenaSeal™
Closure system



ClariVein®



Liquid and Foam Sclerotherapy

- Sclerosing agent injected directly into vein
- Can be done visually or using ultrasound
- Can be used on veins <1mm to >5mm

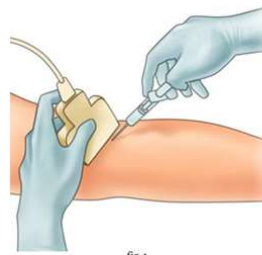


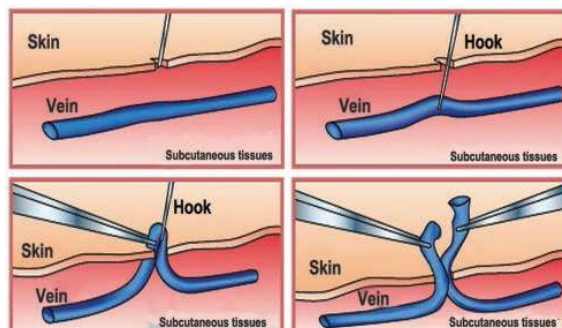
FIG 1.
Utilizing ultra sound technology, the varicose vein is located to allow for precision injection of the sclerosant agent.



FIG 2.
Once the sclerosant agent is injected into the vein, it causes the varicose vein to collapse.

Microphlebectomy

- Veins are removed while in the office
- No general anesthesia; Local only
- Minimal to no scarring or pain



New Treatment Benefits

- No general anesthesia (Local only)
- Procedures done in office, not OR
- Minimal down time, if any
- Typical patient has little to no pain
- Procedures typically take <1hr
- Resume most normal activity next day
- Improved outcomes with less risk to the patient

Before and After



Before Treatment



3 Months Post Treatment

Before and After



Before Treatment



6 Weeks After

Before and After



Before Treatment



4.5 Months After

Before and After



Pre-treatment



5 Months post-treatment



11 Months Post

Before and After Varicose Veins



Pre-Treatment



5 Months Post

Advanced Vein Disease Before and After



Pre-treatment



7 weeks



5 Months

Questions for Thought

1. Which of these vascular diseases is most common in the United States?

- A – Peripheral Arterial Disease (PAD)
- B – Venous Insufficiency/Reflux
- C – Coronary Artery Disease
- D – Stroke

Questions for Thought

2. Which of the following is a correct statement?

- A – Venous disease affects men more than women
- B – Venous disease affects women more than men
- C – Venous disease affects women and men the same
- D – I don't know but I think I am going to find out very soon

Questions for Thought

3. Which of these statements is FALSE?

- A – Venous reflux is a disease of the elderly
- B – Venous insufficiency is purely a cosmetic concern
- C – Insurance does not cover treatment of venous reflux
- D – Varicose veins should be treated with vein stripping
- E – All of the above

Questions for Thought

4. According to most recent estimates, how many people in the US are afflicted with venous reflux?

- A – between 5 and 10 Million people
- B – between 10 and 20 million people
- C – between 40 to 50 million people
- D – 50+ million people
- E – I don't know but I bet it's a lot or you would not be up here talking about it

Questions for Thought

5. Which of these symptoms CANNOT be associated with chronic venous insufficiency?

- A – leg pain, aching, and heaviness
- B – Night cramps and Restless Legs
- C – Lower extremity and ankle edema
- D – Skin darkening and texture changes
- E – All of the above can be caused by venous reflux

Questions for Thought

6. How much money is spent yearly just on treatment of venous ulcers in the United States?

A – \$50 – \$100 Million

B – \$100 - \$500 Million

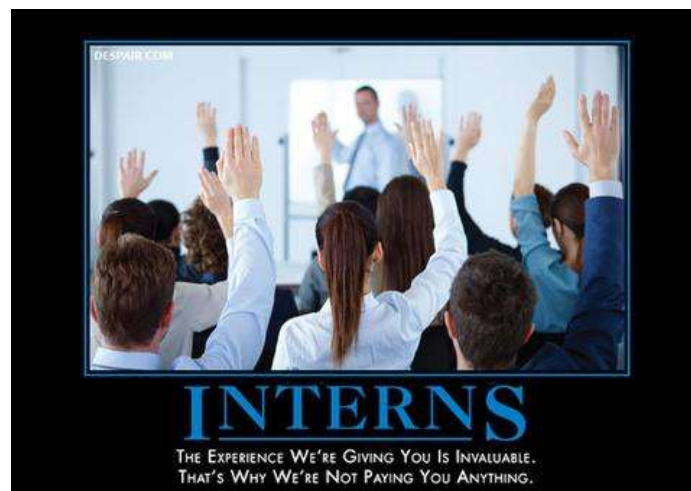
C – \$1 - \$2 Billion

D – Over \$3 Billion

E – I don't know but I bet it's more than I spent to come here and get CME

Questions???

THANK YOU FOR YOUR TIME



www.despair.com

References

1. Brand FN, Dannenberg AL, Abbott RD, Kannel WB. The epidemiology of varicose veins: the Framingham Study. *Am J Prev Med* 1988; 4(2):96-101.
2. Gloviczki, P., MD., Comerota, A., MD., Dalsing, M., MD., Eklof, B., MD., Gillespie, D., MD., Gloviczki, M., MD., Wakefield, T., MD. The care of patients with varicose veins and associated chronic venous diseases: Clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum. *J Vasc Surg.* 2011 May; 53(5 Suppl): 2S-48S.
3. McGuckin M, Waterman R, Brooks J, et al. Validation of venous ulcer guidelines in the United States and United Kingdom. *Am J Surg* 2002;183:132-137.
4. Andreozzi GM, Cordova RM, Scomparin A, Martini R, D'Eri A, Andreozzi F. Quality of life in chronic venous insufficiency: an Italian pilot study of the Triveneto Region. *Int Angiol* 2005;24:272-277.
5. Maurins U, Hoffman BH, Losch C, Jockel KH, Rabe E, Pannier F. Distribution and prevalence of reflux in the superficial and deep venous system – Results from the Bonn vein study, Germany. *J Vasc Surg* 2008;48:680-687.
6. Criqui MH et al. Epidemiology of chronic peripheral venous disease; JJ Bergan Editor, *The Vein Book*, Elsevier Academic Press (2007): 30.
7. Chiesa R, Marone EM, Limoni C, Volonte M, Scafer E, Petrini O. Chronic venous insufficiency in Italy: the 24-cities cohort study. *Eur J Vasc Endovasc Surg.* 2005;30:422-429
8. Rabe E, Pannier F. Epidemiology of chronic venous disorders; P. Gloviczki, Editor, *Handbook of venous disorders* (3rd Edition, Hadder Arnold (2009); 109

Physician Resources



American Vein and
Lymphatic Society
formerly the American College of Phlebology

Phlebology.org

Can find a physician or vein
practice in your area



THE AMERICAN BOARD OF
VENOUS & LYMPHATIC MEDICINE

ABVLM.ORG – Find a **Certified Physician** in your area



Dr. Thomas E. Eidson, DO

2701 Matlock Road, Suite 103
Arlington, TX 76015

PH: 817.795.VEIN (8346)

Email: DrEidson@atlasvein.com